

IMAGE OUTPUT CONTROL APPARATUS, CONTROL METHOD OF IMAGE  
OUTPUT CONTROL APPARATUS AND STORAGE MEDIUM THEREOF

BACKGROUND OF THE INVENTION

5 Field of the Invention

The present invention relates to an image output control apparatus connected to plural image output devices through communication media, capable of controlling to output images of predetermined input data using the plural image output devices, a control method of the image output control apparatus and a storage medium thereof.

Related Background Art

10 There has been known an image formation system of connecting plural image output devices such as digital copying machines, printers and the like through communication media, capable of controlling from a host computer such as a PC (personal computer) or the digital copying machine to output images using the plural image output devices.

15 In recent years, in such the image formation system, dispersive output processing of dispersively executing an image output based on predetermined data stored in or generated by the host computer or the digital copying machine using the plural image output devices comes to be realized. For example, an image formation system of realizing an operation mode called

as cascade copying for outputting image data inputted by reading originals by a scanner unit equipped in an image output device, using the plural image output devices, has been proposed.

- 5           In this image formation system, in case of performing a copying operation of a large number of originals, set number of copies can be dispersively copied by distributing the set number of copies to the plural image output devices by selecting a cascade  
10           copying mode. Accordingly, a time taken in finishing a copying operation of the set number of copies can be shortened as compared with a case of copying the set number of copies using the one device. As a result, image output reproducibility can be improved.
- 15           In case of performing the cascade copying, it is required to select the plural image output devices for outputting images among the plural image output devices constituting the image formation system so as to specify the image output devices for performing the  
20           cascade copying.

- Also, it is required to set various output functions or output forms (in the present application, called as an image output mode) such as the following conditions. That is, for example, the copying  
25           operation is performed or not performed by two-sided copying, what size (A4, B4, etc.) and what kind (sheet quality, thickness and color) of output media should be

used for outputting images, an image is to be outputted by monochrome or color, and the like.

In recent years, the image formation system is constituted by the plural image output devices of which  
5 functions are different each other. In this case, since the image output mode which can be realized by the each image output device is sometimes differed from the image output mode of another image output device, there occurred a case that a selection of the devices  
10 and setting of the image output mode become complex or an erroneous image output is performed.

To cope with the above-described problems occurred when the dispersive output processing such as the cascade copying or the like is executed, the present  
15 applicant applies "image output device priority setting" and "image output mode priority setting". Such the image output device priority setting and the image output mode priority setting were not yet known when the priority Japanese patent applications of the  
20 present U.S. application were filed in Japan.

The image output device priority setting represents that the plural image output devices for performing the cascade copying are initially selected, then only the image output mode by which images can be  
25 commonly outputted using the selected plural image output devices is enabled to be set, and the selection of the plural image output devices and the setting of

the image output mode are performed by setting the image output mode.

The image output mode priority setting represents that the image output mode is initially set, then only  
5 the image output device which can output images by the set image output mode is enabled to be selected, and the selection of the plural image output devices and operation setting of the image output mode are performed by selecting the image output device.

10 With reference to an example of performing the cascade copying using the two image output devices, the above-described image output device priority setting will be explained. At first, the two image output devices for performing the cascade copying are  
15 selected, then only the image output mode by which the images can be commonly outputted using the selected two image output devices is enabled to be set.

For example, in a case where both of the selected two image output devices have a color output function  
20 and only one of the selected two image output devices has a two-sided print function, a two-sided print setting button or the like is deleted from a setting screen. Accordingly, setting of the two-sided print is not to be performed by an operator.

25 Only the button of the image output mode which can be set is to be displayed on the setting screen, and the device selection and the setting of the image

output mode can be simplified by setting the image output mode. Furthermore, an erroneous operation by the operator can be prevented.

5       The above image output device priority setting and the image output mode priority setting are not limited to a case of the cascade copying but may be widely adopted to a case that various dispersive output processing including dispersive print processing of outputting various data edited on a PC are executed  
10       using the plural image output devices.

15       However, conventionally, in the above-described image output device priority setting, even when the selected plural image output devices for the purpose of the cascade copying do not have the same size or the same kind of output media, the image output mode or the like can be set thereafter.

20       Therefore, after the operator performs various settings, when a start instruction of the cascade copying is given, or when it is started to output images upon giving the start instruction of the cascade copying, the operator first notices that the images can not be outputted because the selected plural image output devices do not have the same size or the same kind of output media. That is, there occurred a  
25       problem that various setting operations of before performed are resulted in wasted effort.

      In order to avoid this kind of erroneous setting

operation, the operator has to previously confirm or grasp whether or not the same size or the same kind of output media are stored every the each selected image output device. After all, there occurred a problem  
5 that simplification in the selection of the image output device and the setting of the image output mode according to the image output device priority setting can not be achieved.

These problems were commonly occurred not only in  
10 a case of performing the cascade copying but also in a case of performing the image output device priority setting in an image processing system capable of executing the dispersive output processing.

15 SUMMARY OF THE INVENTION

The present invention can solve the above-described problems, and an object of the present invention is to provide an image output control apparatus which can prevent a state that after an  
20 operator performs various settings, when a start instruction of cascade copying is given, or when it is started to output images upon giving the start instruction of the cascade copying, the operator first notices that the images can not be outputted because  
25 selected plural image output devices do not have the same size output media, and various setting operations of before performed are resulted in wasted effort, a

control method of the image output control apparatus and a storage medium thereof.

Another object of the present invention is to provide an image output control apparatus which can prevent a state that after the operator performs the various settings, when the start instruction of the cascade copying is given, or when it is started to output the images upon giving the start instruction of the cascade copying, the operator first notices that the images can not be outputted because the selected plural image output devices do not have the same size and the same kind of output media, and the various setting operations of before performed are resulted in the wasted effort, a control method of the image output control apparatus and a storage medium thereof.

Still another object of the present invention is to eliminate the necessity that the operator has to previously confirm or grasp whether or not the same size or the same kind of output media are stored every the each selected image output device, and is to provide an image output control apparatus which can surely achieve the simplification in the selection of the image output device and the setting of the image output mode according to the image output device priority setting, a control method of the image output control apparatus and a storage medium thereof.

As one of means for achieving the above objects,

the present invention provides the image output control apparatus connected to the plural image output devices through communication media, capable of controlling to output images of predetermined input data using the

5 plural image output devices, comprising:

a selection means for selecting the plural image output devices for outputting images;

an obtaining means for obtaining output media information stored in each image output device among  
10 the plural image output devices selected by the selection means;

a judgment means for judging whether or not the plural image output devices selected by the selection means store the same-sized output media on the basis of  
15 the output media information obtained by the obtaining means; and

a notification means for notifying a judgment result obtained by the judgment means.

The above objects of the present invention will  
20 become apparent from the attached drawings and the following detailed description based on the attached drawings.

#### BRIEF DESCRIPTION OF THE DRAWINGS

25 Fig. 1 is a block diagram for explaining an entire structure of an image formation system including image output devices to which image output control



apparatuses indicating a first embodiment of the present invention can be adopted;

Fig. 2 is a block diagram for explaining the structure of the image output device shown in Fig. 1;

5 Fig. 3 is a view for explaining a scanner unit and a printer unit shown in Fig 1;

Fig. 4 is a plane view for explaining the structure of an operation unit shown in Fig. 1;

10 Fig. 5 is a block diagram for explaining the structure of an operation unit of the image output device to which the image output control apparatus indicating embodiments of the present invention can be adopted;

15 Fig. 6 is a task structural view of an operation display system showing one example of the software structure regarding an operation display of the image output device to which the image output control apparatus indicating one embodiment of the present invention can be adopted;

20 Fig. 7 is a flow chart showing one example of first control processing executed in the image output device to which the image output control apparatus of the present invention can be adopted;

25 Fig. 8 is a view showing an operation setting screen of the image output device to which the image output control apparatus of the present invention can be adopted;

Fig. 9 is a view showing an operation setting screen (output device selection window) of the image output device to which the image output control apparatus of the present invention can be adopted;

5        Fig. 10 is a view showing the operation setting screen (output device selection window) of the image output device to which the image output control apparatus of the present invention can be adopted;

10       Fig. 11 is a view showing the operation setting screen (output device selection window) of the image output device to which the image output control apparatus of the present invention can be adopted;

15       Fig. 12 is a view showing a warning display screen (warning window) of the image output device to which the image output control apparatus of the present invention can be adopted;

20       Fig. 13 is a flow chart showing one example of second control processing executed in the image output device to which the image output control apparatus of the present invention can be adopted;

      Fig. 14 is a flow chart showing one example of the second control processing executed in the image output device to which the image output control apparatus of the present invention can be adopted;

25       Fig. 15 is a flow chart showing one example of the second control processing executed in the image output device to which the image output control apparatus of

the present invention can be adopted;

Fig. 16 is a flow chart showing one example of  
third control processing executed in the image output  
device to which the image output control apparatus of  
5 the present invention can be adopted;

Fig. 17 is a flow chart showing one example of  
fourth control processing executed in the image output  
device to which the image output control apparatus of  
the present invention can be adopted;

10 Fig. 18 is a block diagram showing an entire  
structure of the image formation system including a PC  
to which the present invention is applicable;

Fig. 19 is a flow chart showing one example of  
control processing executed by the PC to which the  
15 present invention is applicable; and

Fig. 20 is a view for explaining a memory map of a  
storage medium which stores various data processing  
programs which can be read out by the image output  
device or the PC to which the present invention is  
20 applicable.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS (First Embodiment)

Hereinafter, the embodiments of the present  
25 invention will be explained in detail with reference to  
the accompanying drawings.

Fig. 1 is a block diagram for explaining an entire

structure of an image formation system including image output devices to which image output control apparatuses indicating a first embodiment of the present invention can be adopted.

5           In Fig. 1, numeral 200 denotes an image output device which is composed of a scanner unit 2070 being an image input device, a printer unit 2095 being an image output device, a controller unit 2000 for totally  
10           controlling an entire of the image output device 200 and an operation unit 2012 being a user interface.

          The scanner unit 2070, the printer unit 2095 and the operation unit 2012 are respectively connected to the controller unit 2000, which is connected to a  
15           network communication means such as a LAN (Local Area Network) 2011 (e.g., Ethernet) or the like.

          Other image output devices 220, 230, 240 and 250 which have the same structure as that of the image output device 200 are connected to the LAN 2011.

          Similar to the image output device 200, the image  
20           output device 220 is composed of a scanner unit 2270 being the image input device, a printer unit 2295 being the image output device, a controller unit 2200 for totally controlling an entire of the image output  
25           device 220 and an operation unit 2212 being the user interface. The scanner unit 2270, the printer unit 2295 and the operation unit 2212 are respectively connected to the controller unit 2200.

Similarly, the image output device 230 is composed of a scanner unit 2370 being the image input device, a printer unit 2395 being the image output device, a controller unit 2300 for totally controlling an entire  
5 of the image output device 230 and an operation unit 2312 being the user interface. The scanner unit 2370, the printer unit 2395 and the operation unit 2312 are respectively connected to the controller unit 2300. The image output devices 240 and 250 have the same  
10 structure as that of the image output device 200.

Hereinafter, the structure of the image output device to which the image output control apparatus can be adopted will be explained with reference to the image output device 200. The image output devices 200,  
15 220, 230, 240 and 250 may be the image output devices having identical image output functions (media size for images which can be outputted, the kind of media for images which can be outputted, sorting function, two-sided copying function and the like) each other or may  
20 be the image output devices having different image output functions each other.

Fig. 2 is a block diagram for explaining the structure of the image output device 200 shown in Fig. 1. In Fig. 2, the same parts as those in Fig. 1 are  
25 added with the same numerals respectively.

As shown in Fig. 2, the controller unit 2000 is connected to the scanner unit 2070 and the printer unit

2095. While, the controller unit 2000 is also  
connected to the LAN 2011 and a public line (WAN : Wide  
Area Network) 2051, thereby performing an input/output  
operation of image information and device information  
5 including output media information.

In the controller unit 2000, numeral 2001 denotes  
a CPU which entirely controls the system on the basis  
of programs stored in a ROM (Read Only Memory) 2003, a  
hard disk drive (HDD) 2004 or another storage medium  
10 (not shown). Numeral 2002 denotes a RAM (Random Access  
Memory) which acts as a system work memory for an  
operation of the CPU 2001 and also acts as an image  
memory for temporarily storing image data. The ROM  
2003 is a boot ROM which stores a boot program or the  
15 like of the system. The HDD 2004 stores system  
software, image data and the like.

The operation unit 2012 is the user interface unit  
(UI) for performing various settings of the image  
output device 200. Numeral 2006 denotes an operation  
20 unit interface (I/F) which controls various  
input/output operations of the operation unit 2012 by  
outputting image data to be displayed on the operation  
unit 2012 to the operation unit 2012 and notifying  
information inputted by a user of the present system  
25 using the operation unit 2012 to the CPU 2001.

Numeral 2010 denotes a network interface (Network  
I/F) which is connected to the LAN 2011 and performs an

input/output operation of information through the LAN 2011. The CPU 2001 can obtain information regarding the size or kind of output media, information regarding the condition of the each image output device and the like stored in the each image output device located on the LAN 2011 through the network interface 2010.

Numeral 2050 denotes a Modem which is connected to the public line 2051 and performs an input/output operation of information through the public line 2051. The above-described devices are located on a system bus 2007.

Numeral 2005 denotes an image bus interface (Image Bus I/F) which is used for connecting the system bus 2007 to an image bus 2008 for transferring image data at a high speed, and acts as a bus bridge for converting the data structure. The image bus 2008 is structured by a PCI (Peripheral Component Interconnected) bus or an IEEE 1394. On the image bus 2008, the following devices are located.

Numeral 2060 denotes a raster image processor (RIP) which develops a page description language (PDL) code to a bit map image. Numeral 2020 denotes a device interface (device I/F) unit which connects the scanner unit 2070 or the printer unit 2095 to the controller unit 2000 through an image input unit interface (video bus), performs a sync system/non-sync system conversion of the image data, and inputs raster image data of an

interface 2071 from the scanner unit 2070 and outputs raster image data of an interface 2096 to the printer unit 2095 through a printer unit interface (video bus).

Numeral 2080 denotes a scanner image processing unit which executes correcting, forming and editing processes to input image data. Numeral 2090 denotes a printer image processing unit which performs a printer correction, a resolution conversion or the like to print output image data.

Numeral 2030 denotes an image rotation unit which rotates the image data. Numeral 2040 denotes an image compression unit which performs compression/expansion processing such as a JPEG (Joint Photographic experts Group) system for multi value image data and the JPIG (Joint Bi-level Image experts Group) system, an MMR (Modified Modified READ) encoding, an MH (Modified Huffman) encoding or the like for binary image data.

Hereinafter, the scanner unit 2070 being the image input device and the printer unit 2095 being the image output device shown in Fig. 1 will be explained with reference to Fig. 3.

Fig. 3 is a view showing an external appearance of the image output device 200 including the scanner unit 2070 and the printer unit 2095 shown in Fig. 1. In Fig. 3, the same parts as those in Fig. 1 are added with the same numerals respectively.

In Fig. 3, numeral 2072 denotes an original feeder



which feeds original sheets (or original papers) set in a tray 2073 one by one when originals are read.

5       The printer unit 2095 has plural sheet feed stages (here, stages one to three) such that different media size, different media direction or different kind of media can be selected and has corresponding sheet cassettes 2101 and 2102 and sheet deck 2103. Numeral 2111 denotes a sheet discharge tray which receives the printed media.

10       Hereinafter, an operation in each part will be explained.

15       The scanner unit 2070 being the image input device irradiates an image on a sheet being an original and converts the read image data to an electric signal as the raster image data of the interface 2071 (Fig. 2) by scanning the image on the original using a CCD line sensor.

20       The original sheets are set in the tray 2073 provided on the original feeder 2072 which feeds the original sheets one by one, and an operation of reading original images is started upon giving a read start instruction from the CPU 2001 to the scanner unit 2070 by giving the read start instruction through the operation unit 2012 from the user of the device.

25       The printer unit being the image output device is a portion where the raster image data of the interface 2096 is converted to an image on the sheet, and a

method thereof may be any of an electrophotographic system using a photosensitive drum or a photosensitive belt, an inkjet system for directly printing an image on a sheet by discharging ink from a microscopic nozzle array, a thermal transfer system, a sublimation system and the like.

Starting of a printing operation is initiated by an instruction of the interface 2096 from the CPU 2001.

Hereinafter, the structure of the operation unit 2012 shown in Fig. 1 will be explained with reference to Fig. 4.

Fig. 4 is a plane view for explaining the structure of the operation unit 2012 shown in Fig. 1.

In Fig. 4, numeral 2013 denotes an LCD (Liquid Crystal Display) unit on which a touch panel sheet 2019 is pasted. This structured LCD unit displays an operation screen of the system and software keys and notifies position information to the CPU 2001 being a controller when the key being displayed on the LCD is depressed or touched.

Numeral 2014 denotes a start key which is depressed when an original image reading operation is to be started. Numeral 2018 denotes an LED for emitting two colors of green and red, and it is provided on a central position of the start key 2014 to indicate whether or not the start key 2014 is in a usable state according to those two colors.

Numeral 2015 denotes a stop key which is depressed when a running operation is to be stopped. Numeral 2016 denotes an ID (identity) key which is used when a user ID for a user is to be inputted. Numeral 2017 denotes a reset key which is depressed when the setting instructed from the operation unit is to be initialized. Symbol 2016TK denotes ten keys which are used when the number of copies or the like is to be inputted.

Hereinafter, the structure of the operation unit of the image output device to which the image output control apparatus indicating embodiments of the present invention can be adopted will be explained with reference to Fig. 5.

Fig. 5 is a block diagram for explaining the structure of the operation unit of the image output device to which the image output control apparatus indicating the embodiments of the present invention can be adopted.

In Fig. 5, the CPU 2001 totally controls an accessing operation with various devices connected to the system bus 2007 (Fig. 2) on the basis of control programs or the like stored in the program ROM 2003, the HDD 2004 or another storage medium (not shown), reads input information from the scanner unit 2070 connected through the image input unit interface 2071 (Fig. 2) and outputs an image signal being output

information to the printer unit 2095 connected through the printer unit interface 2096.

In the program ROM 2003, the control programs as shown in a task structural view in Fig. 6 described later and flow charts in Figs. 7 and 8 are stored. The RAM 2002 functions as a main memory, a work area or the like of the CPU 2001.

The CPU 2001 obtains operation content through an input port 20061 by receiving information inputted by the user using the touch panel 2019 and hard keys 2014 to 2017 and generates display screen data on the basis of the obtained operation content and the above-described control programs to output that data to an output port 20062.

The output port 20062 being an output device controller for controlling a screen output device outputs a displaying screen to the screen output device such as the LCD unit 2013, a CRT (not shown) or the like on the basis of the display screen data inputted from the CPU 2001, and controls an on/off blinking of the LED 2018 on the basis of LED on/off blinking data inputted from the CPU 2001.

Fig. 6 is a task structural view of an operation display system showing one example of the software structure regarding an operation display of the image output device to which the image output control apparatus indicating one embodiment of the present

invention can be adopted.

In a part of the program ROM 2003 shown in Fig. 2, a task scheduling program called as a real-time OS (Operating System) is stored. Each task indicated in  
5 the task structural view of the operation display system shown in Fig. 6 is also controlled under the management of this real-time OS.

Numerals 2201 denotes a key input task which is started by an interrupt depending on a touch panel  
10 operation and a hard key operation performed by the operator, and processing of waiting a restart is repeated by plugging a key input event in an operation unit event queue 2205.

Numerals 2205 denotes the operation unit event  
15 queue which has FIFO (First-In, First-Out) structure of collectively receiving events from plural tasks. Numerals 2202 denotes an interval timer task which repeats processing of plugging a timer event in the operation unit event queue 2205 every interval of a  
20 predetermined time. Numerals 2203 denotes a task related to a control of the controller (controller control task group) which is not a task of the operation display system. However, the task 2203 has an interface of plugging a main body status event  
25 indicating a status of an equipment in the operation unit event queue 2205 or receiving a drive command of the equipment between the tasks of the operation

display system (the key input task 2201 and the interval timer task 2202).

Numeral 2204 denotes an operation unit application task which captures various events plugged in the operation unit event queue 2205, executes processing corresponding to each of the events and repeats the processing until the operation unit events are all discharged. If the events are all discharged, a state of waiting the events is settled. As the processing corresponding to the events, drawing an image on the LCD unit 2013, lighting the LED 2018 and transmitting the command to the controller control task group 2203 are main processing.

Hereinafter, processing of the operation unit application task 2204 shown in Fig. 6 will be explained with reference to a flow chart in Fig. 7.

Fig. 7 is a flow chart showing one example of first control processing executed in the image output device to which the image output control apparatus of the present invention can be adopted. The CPU 2001 executes the first control processing on the basis of the program stored in the ROM 2003 or another storage medium (not shown) corresponding to one example of processing of the operation unit application task 2204 shown in Fig. 6. Reference symbols S101 to S105 respectively indicate steps.

At first, in the step S101, initializing

processing of the task and various initializing processes to be once executed when the system is started are executed.

Next, in the step S102, it is investigated whether  
5 or not the event exists in the operation unit event queue 2205. When it is judged that the event does not exist, the processing executed in the step S102 is repeated.

On the other hand, in the step S102, when it is  
10 judged that the event exists in the operation unit event queue 2205, a window to be used for notifying the event is judged on the basis of the event content captured from the operation unit event queue 2205 in the step S103.

15 When the window to be used for notifying the event is judged, in the step S104, a control is given to a callback function (perform function call to callback function) previously registered in the judged window. Then, the flow advances to the step S105.

20 Processing in the step S105 is executed within a category of the callback function, and various content of the processing can be set according to the kind of windows. However, as general processing to be executed, processing of creating a new window, drawing  
25 a screen, transmitting a command, on/off blinking the LED or the like is executed.

Next, cascade copying performed in the image

formation system including the image output devices to which the image output control apparatus can be adopted will be explained. As described above, the image output device 200 performs an input/output operation of the raster image data of the interface 2071 and the raster image data of the interface 2096 with the scanner unit 2070 and the printer unit 2095 through the video bus. The image output device 200 can also perform an input/output operation of image information with other plural image output devices through the LAN 2011.

Therefore, the image output device 200 can output the image data inputted by reading originals at the scanner unit 2070 using not only the printer unit 2095 but also the plural image output devices (printer units) including other plural image output devices. The cascade copying means an operation mode in the image formation system of performing a dispersive copy by distributing the set output number of copies to the plural image output devices in case of performing the plural number of copies for the originals.

In the image formation system shown in Fig. 1, an operation procedure in case of performing the cascade copying will be simply explained.

At first, the originals are set in the tray 2073, and setting of the output number of copies for the set originals, selection of the image output device (remote



printer) for outputting images and setting of an image output mode (two-sided copying or not, the size or kind of output media, monochrome output or color output, or the like) are performed in the operation unit 2012.

5           Next, in the operation unit 2012, by depressing or touching the start key (button) by the operator, a start of the cascade copying is instructed. Then, it is started to read the originals set in the tray 2073 according to an input of the instruction.

10           The image data obtained by reading the originals, an output request command based on the setting performed in the operation unit 2012, and the like are transmitted to the selected each image output device through the LAN 2011. In the each image output device,  
15           an image output based on the received image data are performed.

            In case of outputting images, the each image output device performs the image output according to image output mode information included in the received  
20           output request command or the like. For example, in the operation unit 2012, when it is set to output an image using A4 size output media as the image output mode, the selected each image output device feeds the output media from a cassette stage storing the A4 size  
25           output media, forms images on the output media on the basis of the received image data and discharges the output media to the discharge tray.

A series of the cascade copying operation is terminated upon achieving the image output of the distributed number of copies in all of the selected image output devices.

5           As described above, before starting the cascade copying, the operator has to perform various settings in the operation unit 2012. In the present embodiment, the selection of the plural image output devices and the setting of the image output mode are performed on  
10           the basis of the image output device priority setting recently proposed.

          The image output device priority setting means that the plural image output devices for performing the cascade copying are initially selected and only the  
15           image output mode capable of being commonly outputted by the selected plural image output devices is enabled to be set. Then, the image output mode is set. Here, as a concrete example of the image output device priority setting, a case of performing the cascade  
20           copying using the two image output devices will be explained.

          At first, the operator selects the two image output devices for performing the cascade copying in the operation unit 2012.

25           In accordance with an operation input performed by the operator, the CPU 2001 enables to set only the image output mode capable of being commonly outputted

by the selected two image output devices on the basis of device information previously stored in the HDD 2004 or the like.

That is, in a case where the selected two image  
5 output devices have a color output function and only the one of the selected two image output devices has a two-sided print function, only the image output mode which can be set is enabled to be set by disabling the operator from performing the setting of the two-sided  
10 print (e.g., a two-sided print setting button or the like is deleted from a setting screen to be displayed on the LCD 2013).

In this way, by controlling a display displayed on the operation unit 2012 and an operation performed in  
15 the operation unit 2012, a device selection and the setting of the image output mode in case of selecting the plural image output devices and setting the image output mode can be simplified. Furthermore, an erroneous operation performed by the operator can be  
20 prevented.

In the image output devices to which the image output control apparatus of the present invention can be adopted, it is assumed that the image output device priority setting can be performed. Hereinafter, an  
25 operation setting screen and a screen changing operation in the image output devices of the present embodiment which can perform the above-described

cascade copying operation and the image output device priority setting will be explained in detail.

5 The screen changing in the operation screen of the image output device according to the present invention will be described using a screen displayed on the LCD unit 2013 shown in Fig. 4 with reference to Figs. 8 to 12.

10 Fig. 8 is a view showing the operation setting screen of the image output device to which the image output control apparatus of the present invention can be adopted, and this screen corresponds to an initial screen and a standard screen of returning to standard state after setting various image formation functions and is displayed on the LCD unit 2013 in the operation  
15 unit 2012 shown in Fig. 4.

In Fig. 8, numeral 3101 denotes a direct (same-sized copying) key which is a software key used for setting a same size output without using a zoom function in an image formation. Numeral 3102 denotes a  
20 zoom key which is a software key used for setting the zoom function.

Numeral 3103 denotes a sheet select (or paper select) key which is a software key used for setting the output media (i.e., output sheets). For example,  
25 the sheet select key 3103 can be used to set sheet sizes A4, A3, B4, B5, LTR (letter size) and the like. By depressing or touching this key, only the output

media (size) capable of being commonly outputted by the image output device selected by a select output device key 3104 is displayed and only the output media (size) capable of being commonly outputted is enabled to be set.

Numeral 3106 denotes a two-sided copy key which is a software key used for setting the two-sided copying. Numeral 3107 denotes a finishing key which is a software key used for setting sorting of the output media. Numeral 3109 denotes a special feature key which is a software key used for setting other practical functions.

After depressing or touching these keys of the zoom key 3102, the sheet selection key 3103, the select output device key 3104, the two-sided copy key 3106, the finishing key 3107 and the special feature key 3109, the display screen is changed to a screen used for setting more detailed functions.

Numeral 3108 denotes a density setting key which is a software key group used for setting image output density. Numeral 3105 denotes a display area where setting status of the image output device selection is displayed.

The image output device of the present invention can perform an output operation to a remote image output device connected through the LAN (called remote copying) or perform the cascade copying. However, as

an initial status, it is set to perform the image output operation to the own device (called local copying). The setting status of the image output device selection of performing the local copying, the remote copying or the cascade copying is displayed on the display area 3105.

Fig. 9 is a view showing the operation setting screen (output device selection window) of the image output device to which the image output control apparatus of the present invention can be adopted. This screen corresponds to a setting screen displayed after depressing or touching the select output device key 3104 shown in Fig. 8 and is used for selecting the image output device. This screen is displayed on the LCD unit 2013 in the operation unit 2012 shown in Fig. 4.

In Fig. 9, numeral 3201 denotes a selectable image output device list, where names of the selectable image output devices, small appearance icons, status, output specification and the like are displayed as a list. The image output devices displayed as the list are separately registered (registering method will not be described). Here, "Local 1" and "Remote 1" to "Remote 4" displayed in a position of "Device Name" within the selectable image output device list 3201 respectively correspond to the image output device 200, the image output devices 220 to 250 indicated in the image

formation system shown in Fig. 1.

In the selectable image output devices list 3201,  
the output device can be directly selected by an  
operation of a touch panel input. The name of the  
5 selected image output device is reversely displayed.  
Status shown in Fig. 9 is a default status in which a  
local image output device displayed on the uppermost  
position in the list is selected and is reversely  
displayed.

10 Numeral 3204 denotes a cascade key. By depressing  
or touching this key, the two image output devices in  
the list can be selected as the output devices for the  
cascade copying, and check marks are displayed on a  
left-edge field of the names of the selected image  
15 output devices (refer to Fig. 10 to be described  
later).

Numeral 3203 denotes a details key which is a  
software key used for referring a detailed  
specification of the image output device of which name  
20 is selected and reversely displayed. By depressing or  
touching this software key, the screen is changed to  
another screen, where the detailed specification of the  
image output device is displayed.

Numeral 3202 denotes a scroll key which is a  
25 software key used for page scrolling the selectable  
image output device list. Numeral 3205 denotes a done  
key which is a software key used for defining the

selection of the image output device.

Fig. 10 is a view showing an operation setting screen (output device selection window) of the image output device to which the image output control apparatus of the present invention can be adopted. This screen corresponds to a setting screen after depressing the cascade key 3204 on the setting screen shown in Fig. 9. The check marks are displayed on the left-edge field 3301 of a numeral 3302 being the image output device displayed on the uppermost position in the list and a numeral 3303 being the image output device displayed on a second upper position in the list. In Fig. 10, the same parts as those in Fig. 9 are added with the same numerals respectively.

When the cascade key 3204 is depressed or touched, the image output devices indicated by the numerals 3302 and 3303 are selected as default image output devices in case of performing the cascade copying.

Then, when the cascade key 3204 is once depressed, it is shifted to a setting mode of selecting the image output device used for the cascade copying, and the own device being the image output device of which name is displayed on the uppermost position in the list and the other optional one image output device can be selected.

In order to indicate a setting mode of setting the image output device used for the cascade copying, as to the image output devices having no check mark, icons



are to be displayed as shown in the field 3301.

Fig. 11 is a view showing the operation setting screen (output device selection window) of the image output device to which the image output control

5 apparatus of the present invention can be adopted. This screen corresponds to a setting screen after selectively depressing or touching an icon of the image output device displayed on fourth upper position in the list on the setting screen shown in Fig. 10, and the  
10 check marks are displayed on the left-edge field 3301 of the image output devices indicated by the numerals 3401 and 3402. In Fig. 11, the same parts as those in Figs. 9 and 10 are added with the same numerals respectively.

15 In a case where the output media of which size is common to the image output devices indicated by the numerals 3401 and 3402 do not exist, when the done key 3205 is depressed or touched, a warning display screen shown in Fig. 12 explained later is displayed.

20 Fig. 12 is a view showing the warning display screen (warning window) of the image output device to which the image output control apparatus of the present invention can be adopted. This screen corresponds to a  
25 image output device displayed on a fourth upper position in the list on the setting screen shown in Fig. 11, and the check marks are displayed on the left-

edge field 3301 of the image output devices indicated by the numeral 3401 and 3402.

On this screen, a warning window 3501 is displayed superimposed on an image output device selection window. Numeral 3502 denotes a warning message which notifies that the output media of which size common to the selected image output devices do not exist to the operator and recommends a reset.

Numeral 3503 denotes an OK key. By depressing or touching this key, the warning window 3501 is closed to return to the setting screen shown in Fig. 11, and a reset (reselection of the output device) can be performed.

As above, as shown in Figs. 8 to 12, the operation unit 2012 has the LCD unit 2013 for displaying image formation function information when the cascade copying is performed and information related to the plural image output devices which can output images. By performing an operation input using the touch panel 2019 or various keys 2014 to 2017 by the operator on the basis of the information displayed on the LCD unit 2013, the image output mode and the plural image output devices for outputting images can be selected.

Hereinafter, a screen change processing operation of the operation setting screens shown in Figs. 8 to 12 will be explained with reference to flow charts shown in Figs. 13 to 15.

Figs. 13 to 15 are flow charts showing one example of second control processing executed in the image output devices to which the image output control apparatus of the present invention can be adopted. It should be noted that, as described above, since the image output device priority setting is performed in the present embodiment, the image output mode is not set when this second control processing is started. The CPU performs the processing on the basis of the programs stored in the ROM 2003 or another storage medium (not shown) corresponding to one example of a screen change processing procedure of the operation setting screen. Reference symbols S201 to S217 respectively indicate steps.

At first, in the step S201, it is judged whether or not an input event is the depressing or touching of the details key ("Details" button) 3203. When it is judged that the input event is the depressing or touching of the details key ("Details" button) 3203, in the step S206, a window (not shown) for displaying detailed information of the image output device being currently selected is created and displayed, and processing of the callback function is terminated. On the other hand, in the step S201, when it is judged that the input event is not the depressing or touching of the details key ("Details" button) 3203, it is judged whether or not the input event is the depressing

or touching of the cascade key ("Cascade" button) 3204 in the step S202. When it is judged that the input event is the depressing or touching of the cascade key ("Cascade" button) 3204, in the step S207, the check marks are displayed on the left-edge field 3301 of the local image output device and the one remote image output device in the image output device list 3201, and the processing of the callback function is terminated.

On the other hand, in the step S202, when it is judged that the input event is not the depressing or touching of the cascade key ("Cascade" button) 3204, it is judged whether or not the input event is the depressing or touching of the scroll key (scroll button) 3202 in the step S203. When it is judged that the input event is the depressing or touching of the scroll key (scroll button) 3202, in the step S208, the image output device list 3201 is page scrolled and displayed to update a page number currently displayed, and the processing of the callback function is terminated.

On the other hand, in the step S203, when it is judged that the input event is not the depressing or touching of the scroll key (scroll button) 3202, it is judged whether or not the input event is the depressing or touching of an item in the image output device list 3201 in the step S204. When it is judged that the input event is the depressing or touching of the item

in the image output device list 3201, in the step S209, a background of the depressed or touched list item is light blue displayed (so called a reversely display), and the flow advances to the step S210.

5           Next, in the step S210, it is judged whether or not cascade setting is in a possible state. When it is judged that the cascade setting is not in the possible state (in the impossible state), the processing of the callback function is terminated as it is.

10           On the other hand, in the step S210, when it is judged that the cascade setting is in the possible state, it is judged whether or not the depressed or touched item is the remote image output device (device capable of performing remote copying) in the step S211.

15           When it is judged that the depressed or touched item is not the remote image output device, the processing of the callback function is terminated as it is.

            On the other hand, in the step S211, when it is judged that the depressed or touched item is the remote

20           image output device, a check mark display is changed to be displayed on the depressed list item in the step S212, and the processing of the callback function is terminated.

            On the other hand, in the step S204, when it is

25           judged that the depressed or touched item is not the remote image output device, it is judged whether or not the input event is the depressing or touching of the

done key ("Done" button) 3205 in the step S205. When  
it is judged that the depressed or touched input event  
is not the depressing or touching of the done key  
("Done" button) 3205, the processing of the callback  
5 function is terminated as it is.

On the other hand, in the step S205, when it is  
judged that the depressed or touched input event is  
depressing or touching of the done key ("Done" button)  
3205, it is judged whether or not the cascade setting  
10 is in the possible state in the step S213.

In the step S213, when it is judged that the  
cascade setting is in the possible state, the CPU 2001  
obtains output media information of the local image  
output device being the own device and further obtains  
15 output media information of the selected remote image  
output device through the network interface 2010 in the  
step S214. The output media information is not limited  
to information related to what size and what kind of  
the output media are distributed to and held in the  
20 each cassette stage but may include information of no  
output media is held in the each cassette stage.

In the step S215, it is judged whether or not the  
output media of which size is common to the selected  
local output device and remote output device exist on  
25 the basis of the output media information obtained in  
the step S214. In this judgment, in a case where the  
selected two image output devices do not have the

cassette stage which can hold the same-sized (common-sized) output media or in a case where even if the selected two image output devices have the cassette stage which can hold the same-sized output media, the one of the image output devices does not have that size output media, it is judged that the same-sized output media do not exist.

In the step S215, when it is judged that the same-sized output media do not exist, a window of giving a warning that the same-sized output media do not exist in the selected local image output device and remote image output device and recommending the reselection (the warning window 3501 shown in Fig. 12) is displayed in the step S214, and the processing of the callback function is terminated.

At this time, it may be structured that the selection of the plural image output devices for performing the cascade copying selected by depressing or touching the item in the image output device list 3201 is canceled.

On the other hand, in the step S215, it is judged that the same-sized output media exist, a window for setting the image output device (the output device selection window shown in Figs. 9 and 11) is closed in the step S217, and the processing of the callback function is terminated.

It should be noted that when the callback function

is terminated, the same-sized output media which are commonly held by the plural image output devices for performing the cascade copying may be displayed.

On the other hand, in the step S213, when it is  
5 also judged that the cascade setting is not in the possible state (impossible state of the cascade connection), the window for setting the image output device (the output device selection window shown in Figs. 9 and 11) is closed in the step S217, and the  
10 processing of the callback function is terminated.

As above, the control processing in the present embodiment was explained. Obtaining processing of the output media information executed in the step S214 is not limited to the structure of directly obtaining the  
15 information through a network but may be structured that, for example, the output media information is previously stored in the HDD 2004 or the like and the output media information is captured from the HDD 2004 or the like in accordance with the termination of the  
20 processing executed in the step S213.

As explained above, in the present embodiment, in operation setting based on the image output device priority setting when the cascade copying is performed, the output media information of the selected image  
25 output device is obtained when the plural image output devices for outputting images are defined. On the basis of the obtained output media information, it is



judged whether or not the selected plural image output devices have the same-sized output media. When it is judged that the plural image output devices do not have the same-sized image output media, this fact is to be notified to the operator by displaying the fact on a display as a window.

Accordingly, the operator can recognize whether or not images can be outputted by the fact that the plural image output devices for outputting the images have or do not have the same-sized output media before the operator performs various setting operations such as the image output mode setting and the like.

(Second Embodiment)

In the first embodiment, in the image output devices to which the image output control apparatus of the present invention can be adopted, the structure of displaying the window for notifying the warning (the warning window shown in Fig. 12) in case of not existing the same-sized output media when the cascade copying is performed, was explained.

However, the present invention is applicable to not only a case of executing display control processing based on the presence or absence of the same-sized image output media but also a case of executing display control processing based on the presence or absence of the same-kind (common kind) of the image output media. In the present embodiment, display control processing

based on the size and kind of the image output media will be explained.

5       The hardware structure of an image formation system and an image formation apparatus in the present embodiment is same as that in the first embodiment, and also it is assumed that when the cascade copying is performed, setting based on the image output device priority setting is executed. Hereinafter, the structure of an operation setting screen and a screen  
10    changing operation in the present embodiment different from those in the first embodiment will be mainly explained.

15       In the image output devices of the present embodiment, the output media selection (Paper Select) key 3103 shown in Fig. 8 can set not only the size of output media but also the kind of output media (a normal sheet, a thick sheet, a thickest sheet, a thin sheet, an OHP (overhead projector) film, color sheets (red, blue, yellow, black, etc.), a specific sheet, and  
20    the like).

      By depressing or touching the key 3103, only the output media (size and kind) capable of being commonly outputted by the image output devices selected by depressing or touching the image output device  
25    selection key 3104 is displayed, and only the image output media (size and kind) capable of being commonly outputted is enabled to be set.

The operation setting screens regarding an operation of the cascade copying in the present embodiment are same as those shown in Figs. 8 to 11 indicated in the first embodiment, and the screen change processing procedure also corresponds to that in the above operation setting screens, it is same as the processing in the second control processing indicated by the flow charts shown in Figs. 13 and 14.

However, in the present embodiment, processing regarding the image output media after depressing or touching the done key ("Done" button) 3205 shown in Fig. 11 is different from that in the first embodiment. A screen change processing procedure corresponding to the processing in the present embodiment will be explained with reference to Fig. 16.

Fig. 16 is a flow chart showing one example of third control processing executed in the image output devices to which the image output control apparatus of the present invention can be adopted. The CPU 2001 executes this processing on the basis of programs stored in the ROM 2003 or another storage medium (not shown). Reference symbols S218 to S222 respectively indicate steps.

At first, similar to the first embodiment, in the step S218, it is judged whether or not the cascade setting is in the possible state. When it is judged that the cascade setting is in the possible state, the

CPU 2001 obtains output media information of the local image output device being the own device and the remote image output device in the step S219.

Here, the output media information is not limited to information related to what size and what kind of output media are distributed to and held in the each cassette stage but may include information of no output media is held in the each cassette stage.

In the step S220, it is judged whether or not the output media of which the size and kind are common to the selected local image output device and remote image output device exist on the basis of the output media information obtained in the step S219. In this judgment, in a case where the selected two image output devices do not have the cassette stage which can hold the same-sized and same-kind output media or in a case where even if the selected two image output devices have the cassette stage which can hold the same-sized and same-kind output media, the one of the image output devices does not have that output media, it is judged that the same-sized and same-kind output media do not exist.

In the step S220, when it is judged that the same-sized and same-kind output media do not exist, a window of giving a warning that the same-sized and same-kind output media do not exist in the selected local image output device and remote image output device and

recommending the reselection is displayed, and the processing of the callback function is terminated in the step S221. In the step S212, although a screen displayed on the LCD unit 2013 is not shown, a message  
5 of "There is no same-sized and same-kind output media on selected address. Reselect address" is displayed.

At this time, it may be structured that the selection of the plural image output devices for performing the cascade copying selected by depressing  
10 or touching an item in the image output device list 3201 is canceled.

On the other hand, in the step S220, when it is judged that the same-sized and same-kind output media exist, a window for setting the image output devices  
15 (the image output device selection window shown in Figs. 9 and 11) is closed in the step S222, and the processing of the callback function is terminated.

It should be noted that when the callback function is terminated, the same-sized and same-kind output  
20 media commonly held by the plural image output devices for performing the cascade copying may be displayed.

On the other hand, in the step S218, when it is judged that the cascade setting is not in the possible state (impossible state of the cascade connection), a  
25 window for setting the image output devices (image output device selection window shown in Figs. 9 and 11) is closed in the step S222, and the processing of the

callback function is terminated.

In the present embodiment, a display control based on the size and kind of output media has been explained. However, it is needless to say that the present invention is not limited to this case but may be structured that the warning is given only when the same-kind output media do not exist without regarding the size of output media and the selection of the image output devices is canceled.

10 As explained above, in the present embodiment, in the operation setting based on the image output device priority setting when the cascade copying is performed, the output media information of the selected each image output device is obtained when the plural image output  
15 devices for outputting images are defined. On the basis of the obtained output media information, it is judged whether or not the selected plural image output devices have the same-sized and same-kind output media. When it is judged that the plural image output devices  
20 do not have the same-sized and same-kind output media, this fact is to be notified to the operator by displaying the fact on a display as a window.

Accordingly, the operator can recognize whether or not images can be outputted due to the fact that the  
25 plural image output devices for outputting the images have or do not have the same-sized and same-kind output media before the operator performs various setting

operations such as the image output mode setting and the like.

(Third Embodiment)

5 In the operation setting when the cascade copying is performed, the image output device priority setting was performed in the first and second embodiments. In the image output device priority setting, at first, the image output devices for performing the cascade copying have to be defined.

10 Therefore, after the operator depressed or touched the done key ("Done" button) 3205 in the step S205 shown in Fig. 13, it is shifted to processing regarding the output media such as the second control processing shown in Fig. 15 or the third control processing shown in Fig. 16.

15 However, according to the structure or state of an image formation system, the image output devices for performing the cascade copying are sometimes defined before depressing the done key ("Done" button) 3205.

20 For example, among the plural image output devices structuring the image formation system, if only the two image output devices which can perform the cascade copying exist, since only the one selectable combination of the devices exist at a timing after  
25 depressing the cascade key ("Cascade" button) and before depressing the done key ("Done" button) 3205, the two image output devices for outputting images are

automatically selected, and the image output devices for performing the cascade copying are defined.

However, in the control processing of the first and second embodiments, also in the above-described situation, it is shifted to the processing regarding the output media in accordance with the depression of the done key ("Done" button) 3205 performed by the operator.

Therefore, in a case where the same-sized or same-kind output media do not exist in the two devices, the various setting operations performed by the operator after the depression of the cascade key ("Cascade" button) until the depression of the done key ("Done" button) 3205 are resulted in the wasted operation.

In the present embodiment, in order to prevent the above-described wasted operation, it is structured that the immediate shifting to the processing regarding the output media after depression of the cascade key ("Cascade" button) can be performed.

In the present embodiment, in the same image formation system as that in the first and second embodiment shown in Fig. 1, an operation setting screen and a screen changing operation in case of assuming that a situation of having only the two image output devices which can perform the cascade copying may occur will be explained with reference to Fig. 17.

Fig. 17 is a flow chart showing one example of



fourth control processing executed in the image output device to which the image output control apparatus of the present invention can be adopted. The CPU 2001 executes this processing on the basis of the programs stored in the ROM 2003 and another storage medium in accordance with one example of an image change processing procedure in the operation setting screens shown in Figs. 8 to 11. Reference symbols S201 to S209 and S223 respectively indicate steps.

Here, the steps executing the same processing as those in the first and second embodiments are indicated by the same reference symbols, and the description thereof will be omitted. With respect to the flow in the step S209 in Fig. 17, it advances to the step S210 shown in Fig. 14. With respect to the flow in the step S205 in Fig. 17, it advances to the step S218 shown in Fig. 16.

In the present embodiment, processing after depressing the cascade key ("Cascade" button) in the step S202 is different from that executed in the first and second embodiments.

In the present embodiment, after depressing the cascade key ("Cascade" button), it is judged whether or not the two image output devices which can perform the cascade copying exist in the step S223. When it is judged that the two or more than two image output devices exist, the flow advances to the step S207,

where the same processing as that in the first and second embodiments is executed.

In the step S223, when it is judged that the two image output devices exist, in the present embodiment,  
5 the flow immediately advances to the step 213 and the following steps where the processing regarding the output media is executed.

With respect to the processing executed after the step S213, since the same processing as that in the first embodiment (second control processing shown in  
10 Fig. 15) or the second embodiment (third control processing shown in Fig. 16) is executed, the description will be omitted.

As explained above, in the present embodiment, it  
15 is judged whether or not the two image output devices which can perform the cascade copying exist in accordance with an instruction of the cascade copying (depression of the "Cascade" button) given by the operator. When it is judged that the two image output  
20 devices exist, since it is possible to immediately judge whether or not the same-sized and the same-kind output media exist, the trouble of various operation settings (Step S201, Steps S203 to S205) can be saved and more simple operation setting can be achieved.  
25 (Fourth embodiment)

In the first to third embodiments, the present invention was explained in a case that the cascade

copying is performed by adopting the image output control apparatus of the present invention to the image output device 200 included in the image formation system shown in Fig. 1.

5           However, the present invention is not limited to be applied to the image output device. Particularly, in an image formation system structured by a PC and the plural image output devices, in case of executing dispersive print processing in which the PC is treated  
10           as a host computer, the control processing as explained in the first to third embodiments can be executed by applying the present invention to the PC.

          In the present embodiment, with respect to a case that the dispersive print processing is executed on the  
15           basis of data generated in the PC by applying the present invention to the image formation system which includes the PC shown in Fig. 18, the present invention will be explained.

          In Fig. 18, the image output devices 200 to 250  
20           have the same structure as that of the image output devices in the first to third embodiments.

          A PC 260 can communicate with the image output devices 200 to 250 through the LAN 2011 and can obtain device information (output media information, device  
25           information or the like) of the image output devices. The PC 260 can instruct print processing based on data generated by or stored in the PC 260 to the image

output devices 200 to 250. For example, in case of  
printing out image data edited by the PC on the plural  
numbers of copies, the dispersive print processing of  
causing the image out put devices 200 and 220 to  
5 perform the dispersive print of dispersively outputting  
images on the set numbers of copies can be executed.

Also, in case of the operation setting of the  
dispersive print processing, the plural image output  
devices for outputting images have to be selected and  
10 the image output mode such as various image output  
functions and the like have to be set using a display  
and a keyboard of the PC. In the present embodiment,  
the device selection and setting of the image output  
mode depend on the before described image output device  
15 priority setting.

The control programs of the above-described  
dispersive print processing and the image output device  
priority setting are previously stored in a HDD built  
in the PC 260. These programs are loaded to a memory  
20 in the PC 260 in accordance with an instruction from  
the operator and are executed.

In the present embodiment, different from the case  
in the first to third embodiments, since the dispersive  
print processing in which the PC is treated as the host  
25 computer is executed, the control processing for the  
setting screen and the screen change based on the image  
output device priority setting are slightly different

from those shown in Figs. 8 to 11, 13 and 14. But, the description will be omitted here.

However, the processing (step S205 shown in Fig. 13) of specifying the plural image output devices for  
5 outputting images in accordance with an input operation performed to the keyboard by the operator is always included in this control processing. Similar to the first to third embodiments, it is shifted to the processing regarding the output media in accordance  
10 with the depression of the done key ("Done" button).

Hereinafter, the processing regarding the output media after depressing the done key ("Done" button), before that the above-described dispersive print processing and the programs of the control processing  
15 for the image output device priority setting were executed, will be explained.

Fig. 19 is a flow chart showing one example of control processing executed by the PC to which the present invention is applicable. This processing is  
20 executed by the CPU built in the PC based on the programs stored in the built-in HDD. Reference symbols S224 to S228 respectively indicate steps.

At first, similar to the case of the first embodiment, in the step S224, it is judged whether or  
25 not setting of the dispersive print processing is in the possible state. When it is judged that the setting of the dispersive print processing is in the possible

state, the CPU built in the PC obtains output media information of the selected image output device in the step S225.

Here, the output media information is not limited to information related to what size and what kind of output media are distributed to and held in the each cassette stage but may include information of no output media is held in the each cassette stage.

In the step S226, it is judged whether or not the same-sized output media exist in the selected image output device on the basis of the output media information obtained in the step S225. In this judgment, in a case where the selected two image output devices do not have the cassette stage which can hold the same-sized output media or in a case where even if the selected two image output devices have the cassette stage which can hold the same-sized output media, the one of the image output devices does not have that output media, it is judged that the same-sized output media do not exist.

In the step S226, when it is judged that the same-sized output media do not exist, a window of giving a warning that the same-sized output media do not exist in the selected two image output devices and recommending the reselection is displayed in the step S227, and the processing of the callback function is terminated. Although a screen to be displayed in the

step S227 is not shown, it may be the same warning screen as that shown in Fig. 12.

At this time, it may be structured that the selection of the plural image output devices for  
5 performing the cascade copying selected by depressing or touching the item in the image output device list 3201 is canceled.

As above, the present invention was explained in a case that the dispersive print processing based on data  
10 generated in the PC is executed by applying the present invention to the image formation system including the PC shown in Fig. 18. However, it is needless to say that it may be structured that the dispersive print processing is to be executed by treating a device other  
15 than the PC as a host computer.

For example, it may be structured that image data obtained by scanning originals is stored in the HDD  
2004 in the image output device 200 in which the plural image output devices are selected, and the dispersive  
20 print processing can be executed using the selected image output devices on the basis of the stored image data.

It is not required to structured that the dispersive print processing is controlled by only the  
25 one device. For example, it may be structured that a print server (not shown) is to be equipped with a printer automatic selection function, a printer

information obtaining function and the like, and the PC is to be equipped with the function for performing only the various settings and displaying when the dispersive print processing is executed.

5           As explained above, according to the present invention, a control processing program based on the present invention is to be previously stored in the PC, and the program is to be executed when the dispersive print processing is executed. Accordingly, also in the  
10       dispersive print processing, the operator can recognize whether or not images can be outputted due to the fact that the plural image output devices for outputting the images have or do not have the same-sized output media before the operator performs various setting operations  
15       such as the image output mode setting and the like.

          Hereinafter, the structure of a data processing program which can be read by the image output device or the PC according to the present invention will be explained with reference to a memory map shown in Fig.  
20       20.

          Fig. 20 is a view for explaining the memory map of a storage medium for storing various data processing programs which can be read by the image output device or the PC to which the present invention is applicable.

25       Although it is not shown in Fig. 20, a case that information for managing program groups to be stored in a storage medium (not shown) such as version



information, creators or the like is also stored, and information which depends on an OS (Operating System) or the like at a side of reading the programs such as icons or the like for discriminatingly displaying the programs is also stored, is sometimes recognized.

Furthermore, data depending on various programs is also managed based on the above-described directory. When a program or data to be installed is compressed, a case that an expanding program is also stored is sometimes recognized.

The functions shown in the task structural view in Figs. 6, 7 and 13 to 19 according to the present embodiments may be performed by a host computer based on programs installed from an external. In this case, the present invention is also applicable to a case that information groups including programs are supplied to the output devices by a storage medium such as a CD-ROM, a flash memory, an FD (floppy disk) or the like or from an external storage medium through a network.

As above, it is needless to say that an object of the present invention can be achieved in a case where a storage medium storing the program codes of software for realizing the functions of the above-described embodiments is supplied to a system or an apparatus and then a computer (or CPU or MPU) in the system or the apparatus reads and executes the program codes stored in the storage medium.

In this case, the program codes themselves read from the storage medium realize new functions of the present invention, and the storage medium storing such the program codes constitute the present invention.

5       The storage medium for supplying the program codes can be, for example, a floppy disk, a hard disk, an optical disk, a magnetooptical disk, a CD-ROM, a CD-R, a DVD-ROM, a magnetic tape, a non-volatile memory card, a ROM, an EEPROM, a silicone disk, or the like.

10       It is needless to say that the present invention also includes not only the case where the functions of the above-described embodiments are realized by the execution of the program codes read by the computer, but also a case where an OS or the like functioning on  
15       the computer executes all the process or a part thereof according to the instructions of the program codes, thereby realizing the functions of the embodiments.

      Further, it is needless to say that the present invention includes a case where the program codes read  
20       from the storage medium are once stored in a memory provided in a function expansion board inserted in the computer or a function expansion unit connected to the computer, and a CPU or the like provided in the function expansion board or the function expansion unit  
25       executes all the process or a part thereof according to the instructions of such the program codes, thereby realizing the functions of the embodiments.

The present invention is applicable to a system composed of plural equipments or to an apparatus including a single equipment. It is needless to say that the present invention is applicable to a case  
5 where the object is achieved by supplying the programs to the system or the apparatus. In this case, the system or the apparatus can accept an effect of the present invention by reading the storage medium storing the programs represented by software for achieving the  
10 object of the present invention for the system or the apparatus.

Further, the system or the apparatus can accept an effect of the present invention by downloading the programs represented by the software for achieving the  
15 object of the present invention from a data base on a network according to a communication program and reading the programs.

As above, the present invention was explained according to the preferred embodiments. However, the  
20 present invention is not limited to the above embodiments, and various modification are possible within the spirit and scope of the appended claims.